INAUGURAL ADDRESS OF PRESIDENT WM. H. SCOTT.

[Delivered at the Eleventh Commencement of Ohio State University, June 18, 1884.]

The subject naturally suggested by this occasion is the university itself, and the kind of education which it is designed to promote. Here is an institution of recent origin but of vigorous growth, resting on a solid financial foundation, and having a history which, though brief, gives promise of an illustrious future.

The paramount question is, what shall that future be? On what principles shall it be founded? By what policy shall it be guided? To what ends shall it be directed? In order to answer these questions we must go back to the beginning. In determining what use should be made of an endowment, it is necessary to look to the terms of its creation. The intent of the donor gives initial direction to the grant, and must be respected in all the subsequent proceedings of those who control it. That intent is to be sought in his own language used in conveying the gift.

In the case of the present endowment the government of the United States is the donor, and congress has stated the purpose of the donation in these words:

"That all moneys derived from the sale of the lands aforesaid, by the state, to which the lands are apportioned, and from the sales of the land-scrip hereinbefore provided for, shall be invested in stocks of the United States, or some other safe stocks, yielding not less than five per centum of the par value of said stocks, and that the moneys so invested shall constitute a perpetual fund; the capital of which shall remain forever undiminished (except so far as may be provided by section fifth of this act), and the interest of which shall be inviolably appropriated by each state which may take and claim the benefit of this act to the endowment, support and maintenance of at least one college, where the leading objects shall be, without excluding other scientific and classical studies, and inducing military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such a manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." (U. S. Statutes, Vol. 61, Stat. 7, Sec. 4.)

It does not require a very close scrutiny of this language to discover that it is not the statement of a single mind setting forth a single untrammeled purpose. It is the welding of two opposite views. Minds that were agreed on the general question of appropriating public lands for education, were at variance as to the kind of education for which it should be appropriated. The result was a compromise—a compromise which consisted not in abandoning the extremes for intermediate ground, but in a union of the extremes.

The proposition that forms the basis of the complete statement which I have quoted, is that "the leading objects shall be to teach such branches of learning as are related to agriculture and the mechanic arts." I have heard it said with a sneer that the farmer's son does not need a college to teach him how to hold a plow; that

this is something which he can learn best at home on the farm. This shows a wide misapprehension or else a gross perversion of the meaning of the statute. It does not propose that the farmer's son shall be taught to hold the plow. He is to be taught "such *branches of learning as are related to* agriculture." No more does the law propose that the mechanic arts shall be taught, but "*such branches of learning as are related to* the mechanic arts." So far as the practice of the art in either case may be necessary to make plain that branch of learning, it should be taught; but the primary object contemplated by the law is the teaching of the principles, the theory, the science, which underlie the successful practice of the art. The art can be learned elsewhere, but the science which will dignify it and transfuse it with intelligence can be most successfully pursued at a school which provides teachers and equipment for such instruction. And when you come to this broader view, what science can you exclude? Chemistry and physiology, mineralogy and geology, physics and mechanics, all would admit, and the list might be easily extended.

But fix the limit where you will the designation of this class of studies is not exclusive of others. Military science is expressly included. Furthermore, it is expressly forbidden that other scientific and classical studies shall be excluded. "Other scientific" studies must mean such as are *not* related to agriculture and the mechanic arts, if there are any such. Mathematics, logic, political science, mental and moral science, seem to have an indisputable claim.

Classical studies are not to be excluded. It is universally supposed, so far as I know, that the term classical studies here means the Greek and Latin languages and their literature; and if these are admitted, surely no one will object to the admission of the French, the German, and the English languages.

It is the insertion of the phrase, "without excluding other scientific and classical studies," that marks the influence of a theory of education different from that which fashioned the other portions of the statute. It indicates a purpose at once definite and decided to save the colleges, which should be established under this grant, from the necessity of confining themselves to narrow and purely utilitarian ends and to allow them scope for an enlarged and enlightened policy.

On the other hand, "the *leading* object shall be to teach such branches of learning as are related to agriculture and the mechanic arts." They are to stand first. They are entitled to the largest share of the proceeds of this fund and to the largest influence in shaping the courses of study and the general policy of the institution. This is the requirement of the law. And by the State of Ohio this requirement has not only been faithfully, but liberally and amply, fulfilled. Of eight courses of study, including the short agricultural course recently adopted, but one requires Greek and but two require Latin. Five require German and five require French, not as accomplishments but as working tools, as instruments of scientific knowledge. But three of the eight courses require mental science. But two require logic or English literature. One course is made up almost wholly of the natural and physical sciences, many of which are elective. The rest are devoted to agricultural, veterinary, mechanical, mining, and civil engineering courses, with such an admixture of mathematics, language, and general science as is necessary to render them broad and effective. Of the sixteen teachers who constitute the faculty, fourteen give instruction in subjects which, I think, every intelligent person would place in a curriculum for indus-

trial education. But it must be remembered that a large part of the ground covered by a course of practical and by one of liberal study, is common to both.

When we consider the equipment, we find a still greater preponderance on the same side. At least a hundred thousand dollars have been expended in laboratories and museums, to say nothing of the annual appropriations for assistance and supplies. These appropriations amounted during the last year alone to nearly seven thousand dollars, which is twice as much as has been given for similar purposes to the departments of language, history, and philosophy, since the institution began.

I mention these facts to remove a false impression which has been entertained by some, and to show with what scrupulous fidelity the trustees have adhered to the letter of the law, by making it the leading object of the institution to teach such branches of learning as are related to agriculture and the mechanic arts.

But let us examine still further the declaration of congress respecting the purposes of the endowment. It is "to promote the education of the industrial classes." Who are the industrial classes? Those who seek an education are, generally speaking, still young. They have not yet become identified, by a choice of their own, with any class of society. Shall they be classed according to the occupation of their parents, or according to their expectations? according to the class from which they come, or according to the class which they are to enter? If those alone, who have come to the university from an industrial class, are to be regarded as belonging to such a class, the way is yet open for every kind of instruction; for many such students wish to enter professional life, and as a preparation for it they wish to pursue classical and philosophical studies. On what ground can they be refused? Belonging, by the hypothesis, to the industrial classes, they are entitled to the benefits which they seek.

But if it be said that those only belong to the industrial classes who expect to enter upon some industrial pursuit on leaving the university, what, in that case, becomes of the closing words of the section—"in the several pursuits and *professions* of life? Nothing can be clearer than that the students of the university were to find here the means of preparing themselves for entering on any of the leading occupations in which men engage.

Who are the industrial classes? Let us seek an answer in another form. At this point I can do no better than express my hearty endorsement of the opinion so well expressed by the first president of the university.

"If it be asked," said he in his inaugural address, "who are the industrial classes of American society, I answer, the great mass of the American people. * * * * Certainly the term can not be limited to the classes who live by manual labor. The manufacturer, the builder, the engineer, the farmer, who provide and control the manual labor of scores of hundreds, without being able to put their own hands to plow or plane or spindle, belong by the best of right to the industrial classes." With equal reason, I would add, the term should include the classes who are engaged in traffic and transportation. But suppose that the physician's or the lawyer's son desires such an education as the institution provides, who is there that would deny him the right to take his place by the side of the artisan's son and obtain his desire?

What kind of education did congress intend should be obtained here? The law contains a yet more explicit answer. It is to be "a liberal and practical education." It must be practical—that is, it must be such an education as can be made use of. It

must keep hold on reality and look to some useful end. But at the same time it must be liberal. It must not merely deepen the rut in which the student's mind already runs. It is not to fetter his thoughts within the narrow limits of a trade. It is not to fix his eyes forever on the earth, so that he shall never be able to take one wide look into the great world around him, or breathe one aspiration toward the glorious heaven above him. The education given here is to be "liberal". It is to be free, enlightened, broad. It is to emancipate and not to bind, to elevate and not to degrade.

This liberal and practical education, it is further declared, is to be "in the several pursuits and professions of life." The youth who come here are not only to find a door wide open for their entrance, but to have before them more than one way of exit. When the farmer's son comes, he meets a cordial welcome. If he and his father choose, he can enter a course of education for the farm. But if they choose otherwise, here are other paths leading to other pursuits. He may become a civil engineer or a mechanical engineer or a mining engineer. Here are the courses of study, and here are teachers and apparatus to guide and help him.

But what of the boy who comes from the farm or the shop with the flush of genius on his brow, or the stirrings of a great ambition in his soul? Shall we be compelled to say to him, "We have no place for such as you," and to turn him disappointed from the threshold of his hopes? Surely, the great country whose bounty created this endowment, never meant it to be dealt out so sparingly that her most gifted children should have no share in it. There are, as congress distinctly indicated there should be, gateways out to the professions as well as the pursuits of life. If it were otherwise, the tendency of the grant would be to render class distinctions hereditary, to restrict the son of the farmer, or the artisan to his father's pursuit, and thus to create castes, the bane of freedom, and one of the very last results to which education ought ever to be made to contribute.

It appears, then, that a magnanimous purpose pervades the congressional act under which this university has been established. That act contemplated the development of institutions of large and catholic purpose, which should be to the great mass of the people avenues to knowledge and training, to power, position and influence; so that every youth who has the soul to aspire and to strive should find close at hand and freely offered, the means to realize his aims.

Freedom in the application of the endowment is provided for in still another way. The application is to be made "in such a manner as the legislatures of the states may respectively prescribe." This language is evidently designed to anticipate differences in the circumstances of the different states, such as natural situation and advantages, and the kind and extent of the provision for advanced education already existing. In a word, the institutions were left free to adapt themselves to their environment. Florida would not need the same kind of a university as Iowa, or Maine the same kind as Mississippi. Massachusetts with her Harvard, Connecticut with her Yale, New Jersey with her Princeton, Michigan with her state university, would not have the same wants to meet as West Virginia, or Minnesota, or Ohio. Hence, it was left for the states themselves to determine the particular character of the institutions they would create. Wide differences have been the result. Some have established agricultural colleges, some agricultural and mechanical colleges,

some industrial colleges. Some have established independent colleges, some have combined the grant with other endowments. That all these various forms are within the purview of the foundation, appears from the fact that congress has never indicated the slightest dissatisfaction with the plan adopted by any state.

The first determination of Ohio was "to establish and maintain an agricultural and mechanical college." But after eight years, affording time for experience, for observation, and for mature reflection, the legislature decided that the name of the institution should be changed, and that it should "be known and designated hereafter as the Ohio State University." This act distinctly announced the purpose of the state to avail itself of the liberty allowed by congress to found a school of broader scope and of higher rank than was at first intended. The change of name thus deliberately made means that here may be gathered the agencies for educating the youth of the state in the most liberal and thorough manner for all the pursuits and professions of life. It is a great meaning and a great purpose.

As to the scope of the institution, then, some points are well settled. It is to be, and of right may be, a university. The common misuse of this word makes it necessary to consider its true definition. If we look to its etymology, we find a single suggestion, and that is one of extent. According to this, a university is a place of universal study, or, as Webster defines it, "a universal school, in which are taught all branches of learning." Cardinal Newman calls it, "a place of teaching universal knowledge." Such a conception was at first ideal. The past, however, shows a gradual approach toward it, and the indications of the present point to a more rapid and steady approach. If it should never be realized, it nevertheless suggests the chief greatness in every great thing—the pattern showed in the mount, which is the guide and inspiration in all true workmanship.

The actual university differs in different countries. According to its genius and its wants, each country has developed its own peculiar type. The English, the Scotch, and the German universities present many points of diversity. Owing to the character of our social and political institutions, and the conditions and demands of life among us, the American university will doubtless be unlike all others. All such projects as that lately proposed for planting a German university on our soil, must prove futile, and it is not a matter of surprise that the enterprise met with but little encouragement.

The college has existed in this country from the earliest period of our history. It was born when as yet there was scarcely enough, either of clothing to protect it from the elements, or of food to nourish its life. But it survived all the privations and hardships of its infancy, and has grown to a vigorous manhood. The work which it has done is of inestimable value, and it must remain an indispensable factor in our civilization.

But for many years a series of changes has been going on within our foremost colleges by which they have taken on some of the characteristic features of the university. What form they will finally assume depends mainly on the modifying influences of American life. An institution is a growth, and must conform to the conditions under which it is developed. It is the organic product of many agencies. It results from the co-operation of a thousand elements and a thousand forces. The individual, society, the state, and that subtle power pervading all which we call public sentiment, are a few of the sources that contribute to the new creation. To

begin with, therefore, there must be a central, persistent life—a power that shall continue through all changes, and shall permeate all the materials, organizing them into unity.

The institutions which are thus in the natural course of things developing within the American college, are distinguished from the earlier college: 1, by a wider range of studies; 2, by the freedom of choice allowed among studies; 3, by advanced courses of study; 4, by different methods of instruction.

A wide range of subjects is made possible in two ways: First, by a higher standard of admission, which secures students who have already disposed of much that was formerly included in the college course and who are qualified to do a greater quantity of work; and secondly, by the introduction of electives, which offers to the student alternative courses.

By the same means it is able to perform a higher grade of work. The student, having already pursued in his preparatory course, much that was, a generation or two ago, included in the college course, is able to carry his studies to a higher limit. He is especially aided in this, also by being allowed, at a certain stage of advancement, to omit some kinds of study that he may attain a higher degree of proficiency in others. At Harvard, for example, nothing is prescribed after the freshman year, except rhetoric in the sophomore year and certain written exercises in the sophomore and junior years*. For the rest each student is required to choose for himself four courses from the wide range of electives. There are eight elective courses in physics, nine in chemistry, ten in mathematics, twelve in Latin, thirteen in Greek, seventeen in history, eleven in philosophy, and corresponding numbers in other departments. By selecting his studies chiefly from any one department, the student will in time be able to complete all the courses which it offers, and in this way obtain a very thorough and comprehensive acquaintance with it. But if, instead of restricting himself to special lines of work, he wishes to pursue the ordinary collegiate course, he can choose his studies with this view, and graduate with a general knowledge of many subjects.

Another characteristic of the university, which has been introduced to some extent into the college, is its method of instruction. For elementary teaching the text-book must be the main dependence. The beginner must have the matter which is given him for mastery presented in such a form that he can peruse it easily, repeatedly, and scrutinously. For this nothing equals the printed book. Type is familiar and easy. The book, if judiciously selected, contains the essentials of its subject clearly stated and logically arranged. With this in hand the student can read, review, connect, compare, and perfect his knowledge of rudiments. But when a foundation has thus been laid, the superstructure should be built by a different method. The capable instructor, no longer confining himself to the task of testing the student's acquaintance with the text and of illuminating its dark places, will give to his class the fruits of his own research and reflection. He will assign original work involving research and reflection on their part, thus forming in them habits of independent investigation and teaching them rational and approved methods. In brief, investigation becomes the methods of instruction, and, as the means of conducting it, the text-book is superseded by the library and the laboratory.

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*Since this was written the whole course has been made elective.

What has the Ohio State University done toward realizing these forms of university life? In accordance with the general purpose of the act which gave to the institution its present name, it has been divided into four schools or colleges,—the school of science, the school of engineering, the school of agriculture, and the school of arts and philosophy.

The course of study in the school of science offers opportunity either for a comprehensive survey of the field of science or for prolonged work in special lines. In the freshman year all the studies are required; in the sophomore year two-thirds of the work are required and one-third is elective; while in the junior and senior years one-third is required and two-thirds are elective. A choice of the same science is possible for two, or even three years. In chemistry or anatomy and physiology, which are required throughout the freshman year, a student may do even four years of consecutive work. The subdivision into departments is so complete, that each professor is able, in nearly all cases, to concentrate his time and labor on a single science, which makes it possible to attain a very high degree of efficiency. The laboratories are kept well up with the latest advances in science and afford the means for extended study and research.

The school of engineering embraces three departments, civil, mechanical, and mining. Each of these has its separate instructors and equipment, and provides for a distinct course of study, which extends through three years, following the scientific course of the freshman year, and leads to a corresponding degree.

For the school of agriculture two courses of study have been laid down, a longer one leading to the degree of bachelor of agriculture, and a shorter one leading to no degree, but within a space of two years embracing nearly all of the purely agricultural and veterinary work, together with several elementary sciences and some training in the mechanical laboratory. One or two additions ought to be made in this school, and I but speak the general sentiment of those in authority when I say that there is an earnest purpose to make them at the earliest possible date. An agricultural chemist* and an entomologist would not only strengthen the school of agriculture, but would perform important services directly beneficial to the agricultural interests of the state. By their investigations, by lectures, and by the publication of bulletins and reports, they would be able to disseminate much useful information and to awaken a general interest. But the leading object in having such men in the university would, of course, be to give instruction; and there would annually be sent forth a body of young men to carry the influence of inquiry and intelligence abroad in the state.

The university includes in its curricula language, literature, and political, mental and moral science. The introduction of these subjects has been more recent, and although they are taught as fully as in other colleges of the state, yet, compared with other departments of the institution, the provision made for them is very inadequate. They ought to be strongly reinforced.

The study of language and literature unlocks the treasures of knowledge belonging to every age and to every division of the globe. In political and social science we study the progress of the race as embodied in institutions. Institutions are the products of advancing mind; they incorporate and preserve the fruits of the thought and conflict of all past time. Whatever has been wrought, whatever has been at-

*Prof. H. A. Weber has since been elected to the chair of agricultural chemistry

tained, is here assorted and compacted for us and for our children. Government with its legislature, its judiciary, its executive, and its multiplied minor distributions of power; property, insurance, and the bank; the school, the college, the church, the public charity; marriage and the home; — these are examples of the institutions of society, and they make it plain how the priceless inheritance that has descended to us from our fathers is bound up in them. It is by these that the race has then been raised from barbarism, and without them it would speedily fall back into barbarism.

In philosophy we study the universal. It is the office of intelligence to discover the whole in the part, the class in the individual, the law in the fact. The student in his attitude of observer, should train himself to look beyond the event to its relations with other events, and beyond relations to the principle that governs them. To fail in this is to miss the meaning of the universe. To gain such insight is to solve, so far as man may solve, the eternal enigma of existence.

The opinion has been expressed that industrial education cannot go on successfully with classical or philosophical education; that they are so diverse in spirit and aim as to render harmonious co-operation impossible. I maintain, on the contrary, that they not only can go on together, but ought to go on together. Their harmonious co-operation is not only possible, but desirable, nay, in a republican society it is of the highest importance.*

Each individual ought to obtain, in the course of his education, both theoretical and practical training. By the one his higher faculties will be unfolded, his knowledge will be made comprehensive, his views will be enlightened, his ideals elevated, his tastes refined, and his mental and moral nature deepened and quickened. By the other, his grasp of facts will be strengthened and his modes of thought will acquire firmness and vigor. He is poorly educated who has never looked into the rich treasuries of history and literature, who has learned nothing of social principles and laws, and who, above all, has remained ignorant of the powers and processes of his own mind. But no less is it true that he is poorly educated who has read theories and heard lectures, but has brought nothing to the test of his own senses. "Seeing is believing." For most men seeing is indispensable to clear and definite believing. Experience, dear as may be the school she keeps, must have a share in every thorough or useful education. If a young man returns from the university to the farm—and I hope that many will do so—let him carry with him some knowledge of himself as a rational and moral being, and some illumination from the firmament of thought. If he is to enter a profession, let him take with him a close, practical, hand-to-hand sense of things. A human being, simply because he is

* There is nothing new in the attempt to combine learning and working in the same life. It was once the rule in the history of education, while juvenile education, down to the era of the reformation, was the exception. The two pursuits are not in each other's way; each may give new zest and interest to the other. Nor need the workingman's studies be confined to branches which will be of direct and practical use in his work. The experiment of the workingmen's colleges in England shows that this class are fully able to receive and appreciate what is, in all essential respects, a liberal education, and that not with a view of leaving their own class to enter what is socially construed as a higher, but to remain in it as its educators and leaders. [Thompson's Social Science and National Economy, capter 13, § 346.] In the college of agriculture the students should receive at once the liberal culture that will fit them to associate on terms of equality with educated men, and the special scientific and technical training that will enable them to practice a scientific agriculture. [Same, § 341.]

a human being, ought to have the whole range of his faculties developed and trained. Every key of his soul ought to be so tuned, that under the sweep of the hand of life all its chords will respond in unison, and the full diapason will pour forth its music of sweetness and power. The age demands as much. It insists that its educated men shall be well equipped, and he who is best equipped soonest finds his place and most completely fills it.

But even for the student who chooses a specialty it is best to pursue it where many other things are taught. The varied associations of the place will keep alive in him the consciousness of other departments of thought and effort, and thus preserve him from narrowness and bigotry. The contact with minds of other moulds, and the spectacle of other intellectual pursuits prosecuted with purpose and zeal, will enlarge his sympathies and elevate his aims.*

Thus educated, he will assume his place in active life not to depreciate the labors of other men, and to foment jealousies and hatreds against other classes, but to join with all in the world's common work, and to cement rather than dissolve the bonds which unite man with man. Society differentiates. The highest form of society is the completest unity amid the widest diversity. Guizot has called attention to the fact that the most essential distinction between ancient life and modern life, and between the savage life and the civilized life, is to be found in the simplicity, the oneness, of employment, of condition, and of habits of thought in ancient and savage life, compared with the marvelous variety and complexity of modern civilized life. And this characteristic of our present society is destined to a much greater development. New inventions, new industries, and hence new interests and new combinations of interest are constantly arising. All these—those that already exist, and those that shall be created hereafter—must dwell side by side in society. Not only must they dwell side by side, but they must maintain a constant intercourse and interdependence. The peace of society and the progress of civilization depend on the right adjustment of class to class, of trade to trade, of man to man.

That educated young men and women may be prepared to meet the complicated conditions of modern life, they should have some previous experience of a similar situation. The student should realize something of that multiformity of power which is at work in society. He should experience something of that attrition of opinion, and that combined movement of mind with mind and of department with department, which must constitute so large a part of his experience in the future.

I do not mean to imply that every student should receive the same kind of education. The varied demands of society require that men should be fitted for many kinds of service, and that varied facilities should be afforded. This is now done to a great extent in different schools. The college of arts gives one kind of training, the polytechnic school another, the normal school another, the agricultural school another. But the reasons which I have already assigned make it apparent, I think, that it would be far better for the student that there should be a union of these schools in one place and under one management.

There are other reasons no less cogent. Such a university may be vindicated on the ground of economy. The various departments will reinforce each other not only

*The ignorance and prejudices that come from isolation are worn away in the conflict of the forms of culture. We learn to think the thought, to hope the hope, of mankind. Former times spoke of the dawn of civilization in some one land; we live in the morning of the world. [Bancroft's History Const. U. S., Vol. 1, p. 5.]

intellectually but financially. For example, the professors of the physical sciences can meet the requirements of the students in every course. The student in arts or philosophy can take his chemistry, his physics, his geology, under the same professors and in the same lecture-rooms and laboratories with the student in science or engineering. Larger buildings and more assistants may be necessary, but these can be provided at far less cost than entire departments can be duplicated in different places.

Still another argument in favor of the policy of combination is to be drawn from the healthful stimulus that it creates for the instructor as well as the student. "In a body of strong men each will press his work with more vigor, will study with more perseverance, and will teach with more enthusiasm, because he is surrounded by other men who are putting forth their best exertions. Each will also learn from the wisdom and practice of the others. The value of all this alert, vital activity upon the value of the instruction is incalculable. It will open a fountain of inspiration and power, at which a multitude of youth will annually drink and from which streams of invigorating virtue will constantly flow forth.

Shall not Ohio, so central in her position, so rich in her resources, so liberal in her charity, make her capital the seat of a university whose intellectual greatness shall be one of her chief honors? Nothing is more worthy of her fostering care. Nothing can do more to insure her stability and strength. Nothing can give her a more just and honorable renown.

Let us who are gathered here this day, dedicate ourselves to the fulfillment of these great hopes and to the building up, on this central spot, of a university whose light shall shine afar and whose beneficient power shall be felt by every class of society and in every part of the land.